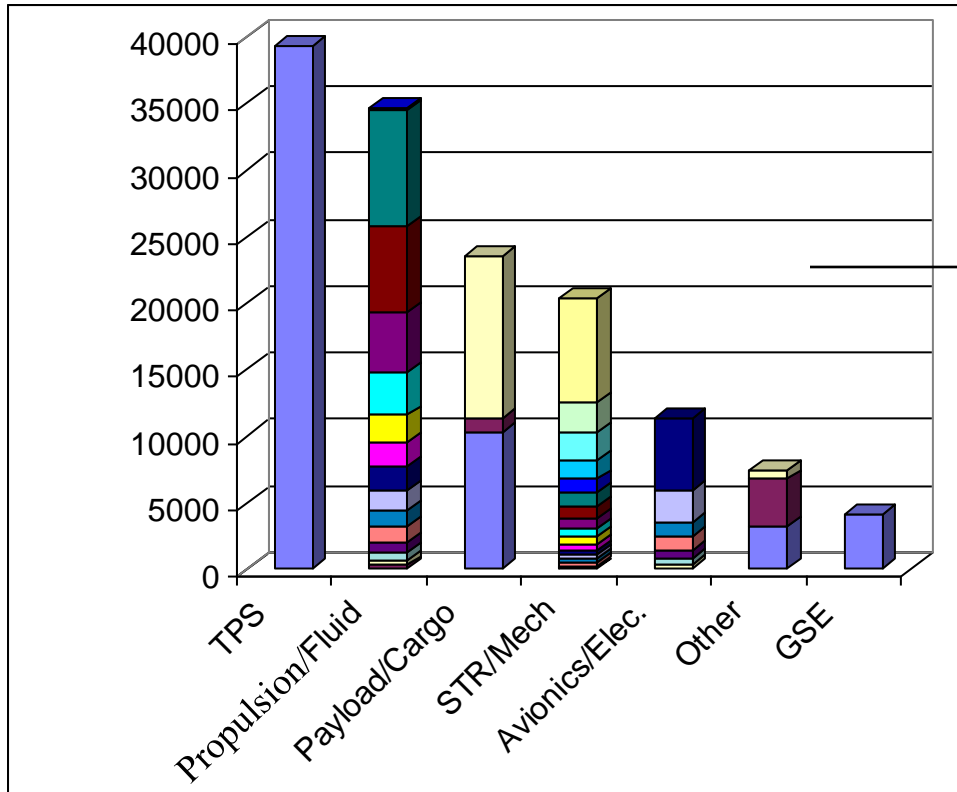


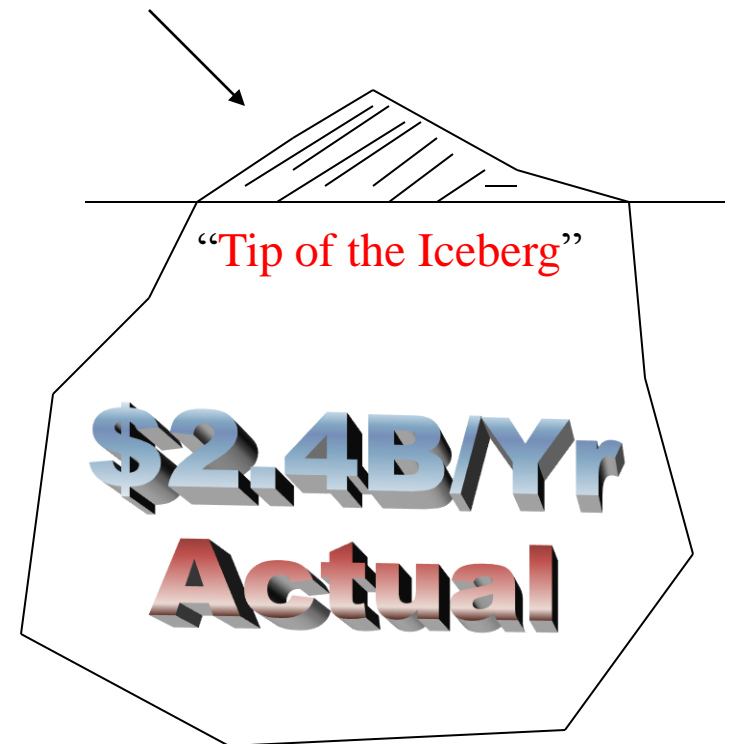
Shuttle Resources

Analysis of System Vs. Labor

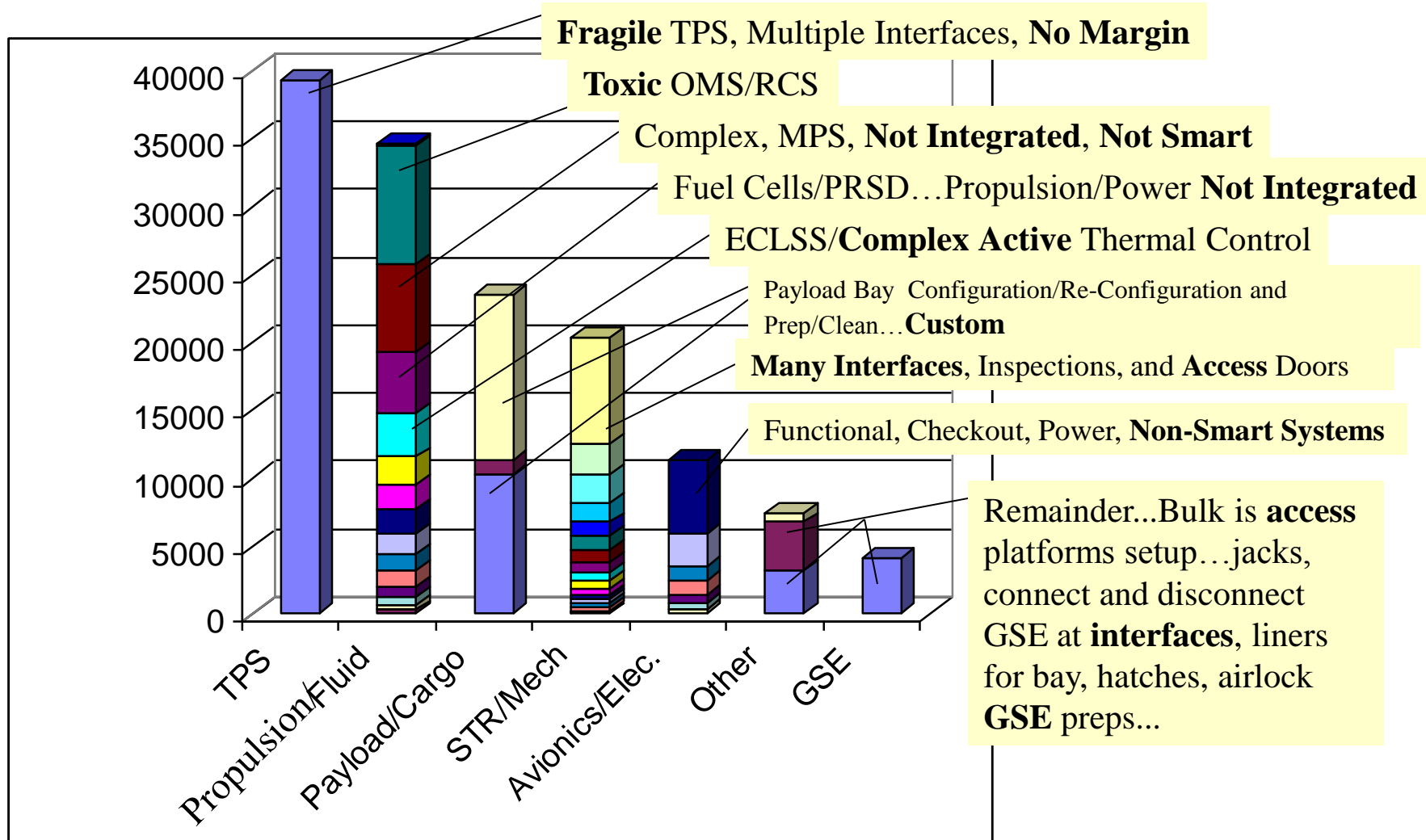


DIRECT Man-hours per orbiter flow, OPF Orbiter activity only. Does not include SSME or OMS/RCS Offline Work, ET, SRB, MLP, Pad. Snap-shot from STS-85 (late 1997). Total~140,000 Mhrs.

Yet “Total” Man-hours per flow will be “only” about 600-700K (which includes engineering, operations planning, quality, support, etc).



Why the cascade effect?



Still... Why the cascade effect?

After 20 Years, still R&R **100** parts per flight...

No end in sight

Reliability (low), Margin (low), Complexity (high)

Test/Fail/Fix Cycle Must be Extended and Run Through Many Times

Results of First Reusable Space Vehicle Operations Experience -

Do Not Rush Immature Hardware/Systems into Operation

